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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DANIEL J. PHILPOTT

Appeal 2010-001358
Application 10/644,354
Technology Center 3600

Before JAMESON LEE, KEVIN F. TURNER, and JOSIAH C. COCKS,
Administrative Patent Judges.

COCKS, *Administrative Patent Judge.*

DECISION ON APPEAL

A. STATEMENT OF THE CASE

The real party in interest, ArvinMeritor Technology, LLC (“ArvinMeritor”), appeals under 35 U.S.C. § 134(a) from a final rejection of claims 24-33, 35-37, 39 and 40¹. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

References Relied on by the Examiner

Hockley	5,699,880	Dec. 23, 1997
White et al. (“White”) ²	US H2026 H	Jun. 4, 2002

The Rejections on Appeal

The Examiner rejected claims 24-27, 32, 33, 35-37, and 39 under 35 U.S.C. § 102(b) as anticipated by Hockley.

The Examiner rejected claims 28-31 and 40 under 35 U.S.C. § 103(a) as unpatentable over Hockley and White.

The Invention

The invention relates to a disc brake assembly, specifically, a system for indicating that an “overstroke” condition has occurred in the air chamber of a disc brake assembly. (Spec. 1: ¶ 1.) An “overstroke” condition is an excessive stroke of a push rod that can result due to such factors as brake lining wear and

¹ The Examiner objected to claims 38 and 41-44 as being dependent upon a rejected base claim, but indicated that the claims are otherwise allowable if rewritten in independent form. (Ans. 4:18-20.)

² White is a “Statutory Invention Registration” document.

loosening of mechanical linkages between the push rod and brake linkages. (*Id.* at 1: ¶ 3.)

Claim 24 is reproduced below (App. Br. 15 Claims App'x.):

24. A brake assembly comprising:

a housing portion comprising a fixed component adapted for attachment to a vehicle structure;

an overstroke sensor mounted to said housing portion; and

an operating shaft that actuates a brake mechanism, said operating shaft rotating about a pivot axis relative to said housing portion, and wherein said operating shaft cooperates with said overstroke sensor to identify an overstroke condition.

B. ISSUES

1. Did the Examiner correctly find that Hockley discloses a brake assembly comprising a housing portion and an overstroke sensor mounted to the housing portion?

2. Did the Examiner correctly find that Hockley's bracket 30 is a "brake component"?

3. Did the Examiner adequately account for the features of claim 33 directed to a movable post or a resilient member, either of which are movable relative to the housing portion in response to contact from an operating shaft to indicate an overstroke condition?

4. Did the Examiner correctly find that Hockley discloses a housing wall with an opening in which an overstroke sensor is mounted?

5. Did the Examiner correctly find that Hockley discloses an overstroke sensor that is mounted to a "brake housing"?

6. Did the Examiner correctly determine that there is adequate motivation to combine the teachings of Hockley and White?

7. Did the Examiner correctly determine that the prior art would have led a person of ordinary skill in the art to attach a switch, as part of an overstroke sensor, to a housing portion?

8. Did the Examiner adequately account in the prior art for the features required by claims 30 and 31?

C. PRINCIPLES OF LAW

During examination, claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000).

Under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend. *AK Steel Corp. v. Sollac and Ugine*, 344 F.3d 1234, 1242 (Fed Cir. 2003).

It is improper to read into an independent claim a limitation explicitly set forth in another claim. *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 699 (Fed. Cir. 1983).

Anticipation is established when a single prior art reference discloses all elements of the claimed invention. *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990).

The test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991).

In an obviousness analysis, it is not necessary to find precise teachings in the prior art directed to the specific subject matter claimed because inferences

and creative steps that a person of ordinary skill in the art would employ can be taken into account. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

The initial burden is on the examiner to establish a prima facie basis to reject the claims. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992).

D. FINDINGS AND ANALYSIS

The Examiner rejected claims 24-27, 32, 33, 35-37, and 39 as anticipated by Hockley and claims 28-31 and 40 as unpatentable over Hockley and White.

Anticipation

Claims 24 and 36 are independent claims. ArvinMeritor argues dependent claims 27 and 32 collectively with claim 24. Claims 25, 26, 33, 35-37, and 39 are each separately argued.

Claims 24, 27, and 32

Independent claim 24 is drawn to a brake assembly. As a part of the assembly, the claim requires a “housing portion” and an “overstroke sensor mounted to said housing portion.” (App. Br. 15 Claims App’x.)

The Examiner found that Hockley discloses a brake assembly as recited in claim 24 including the above-quoted features. Hockley discloses a braking system 10 for “trucks, trailers and the like.” (Hockley 4:15-17.) The braking system includes a brake adjustment indicator having bracket 30 and first and second reference pointers 32 and 34. (*Id.* at 4:34-36.) The Examiner determined that bracket 30 constitutes a housing portion and reference pointers 32 and 34 form an overstroke sensor. (Ans. 3:12-15.)

ArvinMeritor challenges the Examiner’s determination. ArvinMeritor’s challenge is two-fold. ArvinMeritor first contends that bracket 30 is not a housing portion. (App. Br. 3:21-22.) It also contends that reference pointers 32

and 34 are not an overstroke sensor. (*Id.* at 4:21). Neither contention is persuasive.

With respect to the first contention, although ArvinMeritor generally asserts that bracket 30 is not a housing and would not be regarded by one of ordinary skill in the art as a housing (Reply Br. 2:20-22), ArvinMeritor does not substantiate the assertion with any meaningful explanation. ArvinMeritor appears to urge that claim 24 requires that its “housing portion” must form a “brake housing,” *i.e.*, an enclosure for a brake mechanism. (App. Br. 3:19-20.) However, the claim refers only generically to a “housing portion” without specifying what component must be enclosed or supported thereby. During examination, claim terms are given their broadest reasonable interpretation consistent with the specification. *In re Hyatt*, 211 F.3d at 1372.

Here, it is neither unreasonable nor inconsistent with ArvinMeritor’s specification that the “housing portion” set forth in claim 24 may simply be a component that forms a part of the brake assembly but need not itself house or enclose a brake mechanism, *i.e.*, the housing portion need not necessarily be a brake housing. Indeed, we note that other of ArvinMeritor’s claims which depend on claim 24, *e.g.*, claim 41, are necessary to make explicit that “said housing portion is part of a brake housing that substantially encloses the brake mechanism.” (App. Br. 17 Claims App’x.) Under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend. *AK Steel Corp.*, 344 F.3d at 1242. Moreover, it is improper to read into an independent claim a limitation explicitly set forth in another claim. *Environmental Designs, Ltd.*, 713 F.2d at 699.

On this record, and consistent with the doctrine of claim differentiation, we conclude that the recitation in claim 24 of a “housing portion” includes a

structure that is other than a component which forms a “brake housing.” The term “housing” means “[s]omething that covers, protects, or supports.”

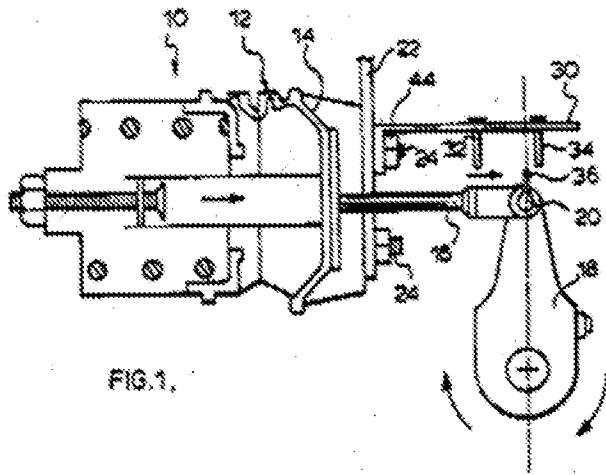
Webster’s II New Riverside University Dictionary 595 (1988). Hockley’s bracket 30 is described as a “support means” (Hockley 4:44) that operates to support first and second reference pointers 32 and 34 (*id.* at Fig. 4). In supporting the pointers, bracket 30 is reasonably viewed as constituting a housing or housing portion for those pointers. We reject ArvinMeritor’s general assertion that Hockley’s bracket 30 is not a housing portion.

Furthermore, Hockley identifies its Figures 1-3 as showing its braking system. (Hockley 4:15.) Each of the figures illustrates bracket 30 as a part of the system. Therefore, we conclude that Hockley’s bracket 30 is a housing portion that forms a part of its braking system or assembly. That is sufficient to account for “a brake assembly comprising...a housing portion” as required by claim 24.

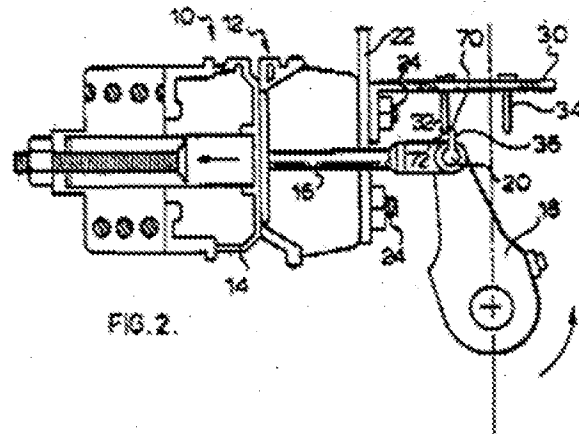
With respect to ArvinMeritor’s assertion that Hockley’s reference pointers 32 and 34 are not an overstroke sensor, we do not agree. ArvinMeritor’s specification describes one embodiment of its invention in which an overstroke sensor is an electrical component which sends an electrical signal to a controller in certain instances indicating that an overstroke condition has occurred. (Spec. 5: ¶ 30.) However, the specification also describes other embodiments involving a “mechanical overstroke member” that visually indicates to an operator when an overstroke condition has occurred. (*Id.* at 6: ¶ 34.) ArvinMeritor’s claims make clear that, in the context of its invention, the term “overstroke sensor” also encompasses an arrangement of mechanical

components which operate to provide visual indication of the overstroke condition. (See claims 32³ and 33⁴.)

Turning to Hockley, the reference describes that its brake adjustment indicator operates to provide “a gauge for measuring” the inward and outward



travel of a push rod and provides a visual signal when brake components are worn or have malfunctioned and need adjustment or replacement. (Hockley 3:36-50.) Hockley’s Figure 1 (reproduced above on left) and Figure 2 (below right) illustrate its brake system undergoing normal operation. As shown in the figures, the system includes a brake arm 18 connected to a push rod 16. (*Id.* at 4:16-19.) Brake arm 18 is connected to a braking means such that movement of push rod 16 causes the braking

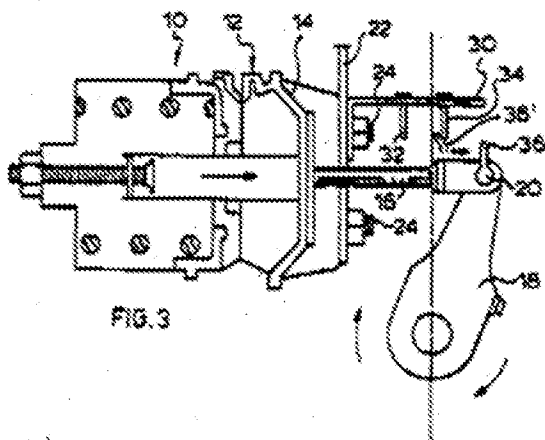


³ Claim 32 recites: “The brake assembly according to claim 24 wherein said overstroke sensor comprises a visual indicator of an overstroke condition.” (App. Br. 16 Claims App’x.)

⁴ Claim 33 recites: “The brake assembly according to claim 32 wherein said visual indicator comprises one of a moveable post and a resilient buckling member, said one of a moveable post and a resilient buckling member being moveable relative to said housing portion in response to contact from said operating shaft to indicate an overstroke condition.” (App. Br. 16 Claims App’x.)

means to engage or disengage based on the direction of travel of the push rod. (*Id.* at 4:25-29.) Attached to brake arm 18 is an “indicator” 36 which moves between reference pointers 32 and 34 when the system is operating normally. (*Id.* at 5:18-21.) Thus, reference pointers 32 and 34 are mechanical components which form the boundaries for normal movement of a push rod in a braking system.

Hockley’s Figure 3 (below left) depicts a situation in which the push rod is outwardly extended such that indicator 36 is beyond reference pointer 34, *i.e.*,



an overstroke condition. That the indicator is beyond the boundaries established by pointers 32 and 34 provides a visual indication to an operator of the overstroke condition. (*Id.* at 5:28-42.) On this record, we are not persuaded that the reference pointers 32 and 34, which are mechanical components that allow for visual indication

of the occurrence of an overstroke condition, are not reasonably regarded as forming an “overstroke sensor” as required by the claims.

Anticipation is established when a single prior art reference discloses all elements of the claimed invention. *In re Spada*, 911 F.2d at 708. For the foregoing reasons, we conclude that the Examiner has adequately established that Hockley discloses all the features of ArvinMeritor’s claim 24. We sustain the anticipation rejection of that claim. The patentability of dependent claims 27 and 32 is not argued apart from claim 24. We also sustain the rejection of claims 27 and 32.

Claim 25

Claim 25 is dependent on claim 24 and adds the feature: “wherein said overstroke sensor is directly mounted to said housing portion.” (App. Br. 15 Claims App’x.) According to ArvinMeritor, Hockley does not disclose the above-quoted feature because the reference does not disclose any sensors mounted, directly or otherwise, to a housing portion.

As discussed above in connection with claim 24, Hockley’s bracket 30 is a housing portion and reference pointers 32 and 34 form an overstroke sensor. The reference pointers are directly mounted to the bracket. (Hockley Fig. 1.) Thus, the Examiner correctly found that Hockley discloses the components and their mounting relationship which are required by claim 25.

We sustain the rejection of claim 25 as anticipated by Hockley.

Claim 26

Claim 26 is dependent on claim 24 and adds the feature: “wherein said housing portion comprises a non-rotating brake component.” (App. Br. 15 Claims App’x.) The Examiner found that Hockley’s bracket 30 is a non-rotating brake component. (Ans. 3:17-18.) ArvinMeritor contests that finding on the premise that bracket 30 is mounted to a vehicle frame and does not form part of a vehicle brake assembly. (App. Br. 5:24-25.) ArvinMeritor thus concludes that the bracket is not a “component” of a brake assembly. (*Id.* at 25-26.)

We do not agree with ArvinMeritor. Hockley describes its Figures 1-3 as illustrating its braking system. (Hockley 4:15-16.) Bracket 30 is shown as constituting part of the system illustrated in those figures. Bracket 30 also is described as forming a part of a brake adjustment indicator (*id.* at 4:33-34), which is stated and shown as being “mounted on a front brake of a vehicle” (Figure 6) and “mounted on a rear brake of a vehicle” (Figure 7) (*id.* at 4:4-9.)

That is, contrary to ArvinMeritor's argument, the bracket, as a part of the brake adjustment indicator, is expressly described as being mounted to front and rear brakes, *i.e.*, brake assemblies.

Furthermore, bracket 30 operates to support reference pointers 32 and 34 which are used to gauge whether brake arm 18 and push rod 16 are operating normally or require replacement or adjustment. In view of bracket 30's stated association with a braking assembly and its described function in supporting components of a brake adjustment indicator, we are not persuaded that the bracket is not reasonably viewed as a "brake component." We reject ArvinMeritor's argument to the contrary.

We sustain the rejection of claim 26 as anticipated by Hockley.

Claim 33

Claim 33 is dependent on claim 32 which is in turn dependent on claim 24. Claim 32 adds the feature: "wherein said overstroke sensor comprises a visual indicator of an overstroke condition." (App. Br. 16 Claims App'x.)

Claim 33 adds (App. Br. 16 Claims App'x.):

wherein said visual indicator comprises one of a moveable post and a resilient buckling member, said one of a moveable post and a resilient buckling member being moveable relative to said housing portion in response to contact from said operating shaft to indicate an overstroke condition.

Thus, claim 33 requires that the visual indicator is formed as one of a moveable post and a resilient buckling member which is moveable relative to the housing portion in response to contact from an operating shaft to indicate an overstroke condition.

The Examiner rejects claim 33 as anticipated by Hockley but does not explain what portions of Hockley's system form either a "moveable post" or a

“resilient buckling member.” Indeed, the Examiner’s Answer does not use those terms. The only explanation in support of the rejection that is offered by the Examiner is the following (Ans.5:12-14):

Re claim 33, Applicant argues that the indicator of Hockley is not movable. In Figure 4 of Hockley, the plate 52 is clearly movable within the slot of bracket 30 as indicated by the arrows.

Thus, the basis for the Examiner’s rejection is that Hockley discloses, in Figure 4, a moveable “plate 52.” As illustrated in Figure 4, Hockley’s plate 52 carries reference pointers 32 and 34 and operates as a means to adjust the position of the pointers along an opening or slot of bracket 30. (Hockley 5:44-56.) Once the pointers are positioned as desired on bracket 30, the plate and the pointers are then “fixed in position on bracket 30.” (*Id.* at 5:63-65.) Thus, although plate 52 is moveable, its motion simply serves to initially place reference pointers 32 and 34 into position along bracket 30. Claim 33, on the other hand, requires that a component that is “moveable relative to said housing portion *in response to contact from said operating shaft* to indicate an overstroke condition.” (App. Br. 16 Claims App’x, emphasis added.) Plate 52 and pointers 32 and 34, however, become fixed to bracket 30 and do not move during operation of Hockley’s braking system. Those components therefore do not move “in response to contact” from an operating shaft to indicate an overstroke condition. The Examiner has not adequately explained how or where Hockley discloses the features that are required by claim 33.

Accordingly, we do not sustain the rejection of claim 33 as anticipated by Hockley.

Claim 35

Claim 35 is dependent on claim 24 and adds the following feature (App. Br. 16 Claims App'x.):

wherein said housing portion comprises a housing wall having an opening extending through an entire thickness of said housing wall, and wherein said overstroke sensor is mounted within said opening such that at least a portion of said overstroke sensor extends outwardly of said housing wall.

According to ArvinMeritor, Hockley does not anticipate claim 35 because it does not disclose an overstroke sensor mounted in the opening of a housing wall. (App. Br. 6:14-19.) We do not agree.

As discussed above, Hockley's brake adjustment indicator includes a bracket 30 that constitutes a housing portion. The bracket includes a wall with an opening 50 that extends the entire thickness of the wall. (Hockley 5:50-52; Fig. 5.) Reference pointers 32 and 34 are mounted to bracket 30 by operation of bolts 56 which extend through opening 50. Once the brake adjustment indicator is assembled, the reference pointers then extend outwardly from the wall of bracket 30. (*Id.* at Figs. 1-3.) In light of those teachings, we are not persuaded of any error in the Examiner's determination that Hockley discloses the features required by claim 35.

We sustain the rejection of claim 35 as anticipated by Hockley.

Claims 36, 37, and 39

Claim 36 is an independent claim. Claims 37 and 39 are dependent on claim 36. Claim 36 is directed to a method of indicating an overstroke condition of a brake assembly. The method includes the following step: "mounting an overstroke sensor to a non-rotating brake housing portion[.]"

(App. Br. 16 Claims App'x.) Thus, claim 36 makes explicit that the overstroke sensor is mounted to a “brake housing.”

The Examiner's rejection of claim 36 is evidently premised on a theory that Hockley's bracket 30 constitutes a “brake housing.” In the context of ArvinMeritor's specification, a “brake housing” is a housing that encloses a braking mechanism. Although, bracket 30 is properly viewed as a “housing portion,” the bracket does not operate to enclose a braking mechanism. Bracket 30 is not a “brake housing.”

Accordingly, we do not sustain the rejection of claim 36 as anticipated by Hockley. We also do not sustain the rejection of dependent claims 37 and 39 which include all the limitations of claim 36.

Obviousness

The Examiner rejected claims 28-31 and 40 as unpatentable over Hockley and White. We address each claim separately.

Claim 40

Claim 40 is dependent on, and includes all the limitations of, claim 36. As discussed above, we conclude that Hockley does not anticipate claim 36 because the reference lacks disclosure of mounting an overstroke sensor to a “brake housing.” The Examiner relies on White only to account for features added by claim 40 and not to account for the above-noted feature.

Accordingly, we do not sustain the rejection of claim 40 over Hockley and White.

Claim 28

Claim 28 is dependent on claim 24 and adds the feature: “wherein said overstroke sensor generates a signal that is communicated to a controller.”

(App. Br. 15 Claims App'x.) The Examiner determined that Hockley does not disclose the above-quoted feature and relied on White to make up for the deficiency.

White discloses a brake service signaling system for use on a vehicle. (White Abstract.) The Examiner determined that White “teaches an overstroke sensor or switch (57) that generates a signal that is communicated to a controller (61).” (Ans. 4:11-13.) ArvinMeritor does not dispute that determination. The Examiner reasoned that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to have provided the sensor of Hockley et al with a signal sent to a controller as taught by White et al merely to prevent the need for manual inspection of the indicator.” (Ans. 4:13-15.) ArvinMeritor challenges that reasoning on the theory that there is no motivation to modify Hockley in the manner suggested by the Examiner because doing so would render Hockley “unsatisfactory for its intended purpose” and “change [its] principle of operation.” (App. Br. 10:13-11:2.) According to ArvinMeritor, the “intended purpose” and “principle of operation” of Hockley’s invention is specifically to provide a “visual” indicator of an overstroke condition which would be prevented if the invention is modified to instead incorporate an electric signaling mechanism. (*Id.*)

We are not persuaded by ArvinMeritor’s argument. ArvinMeritor does not accurately characterize the “intended purpose” or “principle of operation” of Hockley’s invention. Hockley recognizes that devices or gauges for signaling to a vehicle operator when a brake malfunction has occurred are known in the art. (Hockley 1:35-2:4.) Hockley, however, describes that the known prior art devices have several disadvantages including that the devices may be difficult for an operator to properly read and providing the possibility of a “false reading”

of brake wear. (*Id.* at 2:5-24.) The purpose of Hockley's invention is to overcome those disadvantages and its operating principle is to effectively and accurately convey to an operator when brake service is required. A particular embodiment described by Hockley which fulfills that purpose and principle is a brake adjustment indicator, providing, as discussed above, an accurate visual signal to the operator that an overstroke condition has occurred.

White also discloses a system for signaling to an operator that brake service is required. (White Abstract.) White recognizes that while "visual inspection" of brake components may be made to ascertain if service is required (White 2:50-54), such inspection procedures may be "inconvenient and time consuming" and may be neglected which poses a potential safety hazard (*id.* at 1:16-25). White's invention thus proposes a system involving a "push switch" associated with a brake assembly which generates an electric signal for indicating to an operator that brake service is required. (*Id.* at 2:65-3:17.)

The test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Young*, 927 F.2d at 591. Here, a person of ordinary skill in the art, who is also a person of ordinary creativity, *KSR Int'l Co.*, 550 U.S. at 421, would have readily appreciated from the combined teachings of Hockley and White that sensors providing either visual signals or electric signals are known mechanisms for effectively conveying to an operator of the need for brake serving. That the inventors in Hockley implemented visual signaling components in their signaling system does not mean that one of ordinary skill and creativity presented with the teachings of Hockley and White would not have recognized electrical signaling components as a viable signaling alternative. We reject ArvinMeritor's argument that modifying Hockley's system to incorporate

electrical signaling components in lieu of visual signaling components renders Hockley's invention unsatisfactory for its intended purpose or changes its principle of operation. The record reflects that there is adequate motivation to combine the teachings of Hockley and White.

For the foregoing reasons, we sustain the rejection of claim 28 over Hockley and White.

Claim 29

Claim 29 is dependent on claim 28 and adds the limitation: "wherein said overstroke sensor comprises a switch fixed to said housing portion." (App. Br. 15 Claims App'x.) The Examiner determined that above-quoted limitation is accounted for by the teachings of Hockley and White.

According to ArvinMeritor, "[n]either Hockley nor White disclose, suggest, or teach mounting a switch to a housing portion as claimed." (App. Br. 11:17-18.) That argument, however, is unpersuasive. Whether Hockley or White individually disclose a switch mounted to a housing portion is not the relevant inquiry. Rather, the obviousness evaluation must take into account what the teachings when combined would have suggested to a skilled artisan. *In re Young*, 927 F.2d at 591. Furthermore, in an obviousness analysis, it is not necessary to find precise teachings in the prior art directed to the specific subject matter claimed because inferences and creative steps that a person of ordinary skill in the art would employ can be taken into account. *KSR Int'l Co.*, 550 U.S. at 398.

In this case, Hockley discloses bracket 30 as a housing portion on which is mounted an overstroke sensor formed by reference pointers 32 and 34 for providing a visual signal of an overstroke condition. White teaches that an overstroke sensor may take the form of a "switch 56" which provides a signal of

brake malfunction. In light of the combined teachings of Hockley and White, a person of ordinary skill in the art would have reasonably appreciated that Hockley's housing portion is a suitable mounting location for a switch as a part of an assembly signaling that an overstroke condition has occurred.

We sustain the rejection of claim 29 over Hockley and White.

Claim 30

Claim 30 is dependent on claim 29 and adds the following feature (App. Br. 15-16 Claims App'x.):

wherein said operating shaft includes a cam portion defining a profile that cooperates with the brake mechanism to move brake pads toward a brake disc, said operating shaft extending from said cam portion to a distal end, and wherein said distal end contacts said switch.

The Examiner's Answer provides little detail as to how the elements of the above-quoted feature are met by the prior art. In particular, it is not evident what component of the prior art constitutes the required "cam portion" or how a distal end of an operating shaft which extends from the cam portion is the structure that contacts the switch. The only explanation offered by the Examiner is "[i]n Figures 3 and 4 of White, the Examiner feels that it is reasonable to interpret the configuration such that the distal end of the shaft 36 contacts the switch 59." (Ans. 6:6-7.) Figures 3 and 4 of White, however, do not show that the "distal end" of any operating shaft contacts any switch. The Examiner does not sufficiently articulate why it is "reasonable to interpret" what is depicted in those figures as meeting the requirements of claim 30.

The initial burden is on the examiner to establish a prima facie basis to reject the claims. *In re Oetiker*, 977 F.2d at 1445. On the record before us, the

Examiner has failed to meet that burden in connection with claim 30. We do not sustain the rejection of claim 30 over Hockley and White.

Claim 31

Claim 31 is dependent on claim 29 and adds the following limitation

(App. Br. 16 Claims App'x.):

wherein said operating shaft includes a cam portion defining a profile that cooperates with the brake mechanism to move brake pads toward a brake disc, said operating shaft including a tab portion extending outward from said operating shaft adjacent said cam portion wherein said tab portion contacts said switch.

As with claim 30, the Examiner's Answer is largely devoid of any explanation as to how the elements of claim 31 are met by the prior art. The Examiner simply states "it is the Examiner's position that one of ordinary skill in the art would be able to reasonably make a modification such that a sensor is mounted to the housing portion and that the indicator 36 is capable of being the claimed 'tab'." (Ans. 6:8-11.) It is simply not clear what modification is proposed by the Examiner to account for the requirements of claim 31. It is also not clear why "indicator 36 is capable of being the claimed" tab portion. Indicator 36 is a component of Hockley's brake adjustment indicator assembly. The basis of the Examiner's rejections involving Hockley and White is the substitution of White's brake service signaling system for Hockley's brake adjustment indicator assembly. The Examiner does not meaningfully explain why some portion of Hockley's assembly, *i.e.*, indicator 36, would remain as a component that then constitutes the claimed "tab portion."

On this record, we do not sustain the rejection of claim 31 over Hockley and White.

E. CONCLUSION

1. The Examiner correctly found that Hockley discloses a brake assembly comprising a housing portion and an overstroke sensor mounted to the housing portion.

2. The Examiner correctly found that Hockley's bracket 30 is a "brake component."

3. The Examiner did not adequately account for the features of claim 33 directed to a movable post or a resilient member, either of which are movable relative to the housing portion in response to contact from an operating shaft to indicate an overstroke condition.

4. The Examiner correctly found that Hockley discloses a housing wall with an opening in which an overstroke sensor is mounted.

5. The Examiner incorrectly found that Hockley discloses an overstroke sensor that is mounted to a "brake housing."

6. The Examiner correctly determined that there is adequate motivation to combine the teachings of Hockley and White.

7. The Examiner correctly determined that the prior art would have led a person of ordinary skill in the art to attach a switch, as part of an overstroke sensor, to a housing portion.

8. The Examiner did not adequately account in the prior art for the features required by claims 30 and 31.

F. ORDER

The rejection of claims 24-27, 32, and 35 under 35 U.S.C. § 102(b) as anticipated by Hockley is affirmed.

The rejection of claims 33, 36, 37, and 39 under 35 U.S.C. § 102(b) as anticipated by Hockley is reversed.

The rejection of claims 28 and 39 under 35 U.S.C. § 103(a) as unpatentable over Hockley and White is affirmed.

The rejection of claims 30, 31, and 40 under 35 U.S.C. § 103(a) as unpatentable over Hockley and White is reversed.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

WEBSTER'S II

New Riverside University Dictionary

PROPERTY U.S. GOVERNMENT

WEBSTER'S II

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house arrest • hoyden

housewife (hous'wif) *n.* 1. *pl. -wives (-wivz).* A married woman who manages the affairs of a household. 2. (hūz'f), *pl. housewives* (hūz'fiz) or *housewives* (hūz'vz). A small container for sewing equipment.

housewife-y (hous'wifl) *adj.* Of, relating to, or suited to a housewife; domestic. — **housewife-ness** *n.*

housewifery (hous'wif-ri, -wif-ri) *n.* The domestic function or duties of a housewife.

housework (hous'wɜrk) *n.* The tasks of housekeeping, as cleaning or cooking. — **housework'er** *n.*

housing (hou'zɪŋ) *n.* 1. *a.* Residences or dwelling places for people. *b.* A place to live; DWELLING. 2. *a.* Something that covers, protects, or supports. *b.* A frame, bracket, or box for holding or protecting a mechanical part. *c.* A frame in which a shaft revolves. 3. A hole, groove, or slot in a piece of wood for the insertion of another piece. 4. A niche for a statue. 5. Naut. The part of a mast that is below deck or of a bowsprit that is inside the hull.

housing (hou'zɪŋ) *n.* [ME *house* < OFr. *housse* < Med. Lat. *hucia*] 1. A decorative or protective covering for a saddle. 2. often *housings*. Trappings.

housing development *n.* A group of similarly designed houses or apartment buildings, usu. under a single management.

housing project *n.* A publicly funded and administered housing development, usu. for low-income families.

hove (hōv) *v.* *pt. & p.p. of HEAVE.*

hovel (hōvəl, hōv-ə) *n.* [ME, but.] 1. A small, wretched dwelling. 2. A low, open shed.

hover (hōv-ər, hōv-ə) *vi.* -ered, -ering, -ers. [ME *hoveren*, freq. of *hōven*, to hover] 1. To remain floating or suspended in the air over a particular place < a hawk hovering high above >. 2. To stay or linger in or near a place < nervous mothers hovering around backstage >. 3. To begin a state of uncertainty or suspense: WAVER < hovering between life and death >. — *n.* An act or instance of hovering. — **hover'er** *n.* — **hoveringly** *adv.*

Hovercraft (hōv-ər'krāft, hōv-ə) *n.* A trademark for a vehicle used in low-level flight over land or water.

how (hou) *adv.* [ME *howe* < OE *hō*] 1. In what manner or way < How do you play this game? >. 2. In what state or condition < How do I look with short hair? >. 3. To what extent, amount, or degree < How do they like the new car? >. 4. For what reason or purpose: WHY < How did you happen to buy it? >. 5. With what meaning < How should I take that remark? >. 6. By what name. 7. What < How is that again? >. — *conj.* 1. In what way or manner < Can't remember how it was done >. 2. That < Remembered me how they had places to go >. 3. In whatever way or manner < sang it how we wanted >. — *n.* A manner or method of doing or performing < knew the how but not the why >. — **how about**. What do you think or feel about < How about a sandwich? >. — **how come**. For what reason: WHY < How come you lost? >. *usage*: The expressions *seeing as how* and *being as how*, while occurring frequently in spoken English, are inappropriate to formal style.

how-be-it (hou'be-ɪt) *archaic*. — *adv.* Be that as it may: NEVERTHELESS. — *conj.* Although.

howdah also **hau-dah** (hou'də) *n.* [Urdu and Pers. *hau-dah* < Ar. *hauḍā*] A seat, usu. fitted with a canopy and railing, on the back of an elephant or camel.

howdy (hou'di) *interj.* [< *how do you do*] Regional. — Used to express greeting.

however (hou-ev-ər) *adv.* 1. By whatever manner or means < However it happened, we aren't to blame >. 2. To whatever degree or extent < never asked for money, however broke I was >. — *conj.* 1. Nevertheless: yet < It looks like rain, however, the picnic is still on >. 2. *Archaic*. Although: notwithstanding that. *usage*: The use of *however* as the first word of a sentence is entirely acceptable at all levels of spoken or written English.

howitzer (hou'ɪz-ər) *n.* [Du. *houwtzer* < C. *haubitze* < Czech *houfnice*, catapult] A short cannon that discharges shells with medium velocities, usu. at a high trajectory.

howl (houl) *v.* *vi.* **howled**, **howling**, **howls**. [ME *hōplen*] — *vi.* 1. To emit or utter a long, mournful, plaintive sound. 2. To cry loudly, as in pain, grief, or anger. 3. *Slang*. To laugh heartily. — *vt.* 1. To express or utter with a howl. 2. To effect, drive, or force by or as if by howling. — *n.* 1. A long, wailing cry. 2. *Slang*. Something uproariously funny or preposterous.

howler (hou'lor) *n.* 1. One that howls. 2. *also howler monkey*. A tropical American monkey of the genus *Alouatta*, with a long prehensile tail and a loud howling call. 3. *Slang*. An amusing or stupid blunder.

howling (hou'liŋ) *adj.* 1. Marked by howling. 2. *Slang*. Extremely great: TREMENDOUS < The play was a howling success >.

howsoever (hou'əv-ər) *adv.* 1. To whatever extent or degree. 2. By whatever means.

hoy (hoi) *n.* [ME *hois* < MDu. *hoey*] 1. A small sloop-rigged coasting ship. 2. A heavy barge used for freight.

hoyden (hoid'n) *n.* [Prob. MDu. *heidēn*, heathen.] A high-spirited, often boisterous girl or woman. — *adj.* High-spirited; boisterous. — **hoydenish** *adj.*